# SERVICE MANUAL
# Level 1&2

NOKIA 2320 CLASSIC — RM-514 / RM-515

NOKIA 2323 CLASSIC — RM-543

NOKIA 2330 CLASSIC — RM-512 / RM-513

## Transceiver characteristics

**Band:**
EU (RM-512, RM-514, RM-543): EGSM 900/1800
US (RM-513, RM-515): GSM 850/1900

**Display:**
Resolution 128 x 160
1.8" 65000 color TFT display

**Operating System:**
Series 40

**Camera (RM-512 / RM-513):**
VGA (640x480 pixels)

**FM-radio (RM-512 / RM-513 / RM-543):**
Radio recording

**Connections:**
AC-3 charger, AC-6C travel USB charger, 2.5 mm AV connector, Bluetooth 2.0 (RM-512 / RM-513 / RM-543)

| Battery Performance: BL-5C (1020 mAh) | | | | |
|---|---|---|---|---|
| | Ectel Standby | Ectel Talk Time | Best Standby | Best Talk Time |
| RM-512 | 550 h | 4h 40 min | Up to 624 h | Up to 7 h 10 min |
| RM-513 | 560 h | 5 h 20 min | Up to 560 h | Up to 7 h 40 min |
| RM-514 | 580 h | 4 h 40 min | Up to 580 h | Up to 7 h 25 min |
| RM-515 | 580 h | 5 h 20 min | Up to 580 h | Up to 8 h |
| RM-543 | 575 h | 4 h 30 min | Up to 575 h | Up to 7 h |

| Battery Performance: BL-5CA (700 mAh) | | | | |
|---|---|---|---|---|
| | Ectel Standby | Ectel Talk Time | Best Standby | Best Talk Time |
| RM-512 | 380 h | 3 h 15 min | Up to 388 h | Up to 5 h |
| RM-514 | 400 h | 3 h 15 min | Up to 397 h | Up to 5 h |
| RM-543 | 318 h | 2 h 30 min | Up to 393 h | Up to 4 h 50 min |

**Note:** Standby time and Talk time depends on network parameters and phone settings


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## Table of contents

1. Change history ..... 3
2. Copyright ..... 4
3. Warnings and cautions ..... 5
   3.1 Warnings ..... 5
   3.2 Cautions ..... 5
4. ESD protection ..... 6
5. Care and maintenance ..... 7
6. Battery information ..... 8
7. Nokia 2330 classic Exploded view ..... 9
8. Nokia 2320 classic and Nokia 2323 classic Exploded view ..... 10
9. Service devices ..... 11
10. SW-update ..... 12
11. Disassembly instruction ..... 13
12. Assembly hints ..... 18
13. Solder components ..... 19


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# 1. CHANGE HISTORY

| Status | Version No. | Date | Comments |
|---|---|---|---|
| Approved | 1.0 | 01.04.2009 | Approved |

The purpose of this document is to help NOKIA service levels 1 and 2 workshop technicians to carry out service to NOKIA products. This Service Manual is to be used only by authorized NOKIA service suppliers, and the content of it is confidential. Please note that NOKIA provides also other guidance documents (e.g. Service Bulletins) for service suppliers, follow these regularly and comply with the given instructions.

While every endeavor has been made to ensure the accuracy of this document, some errors may exist. If you find any errors or if you have further suggestions, please notify NOKIA using the address below:

**CMO Operation & Logistics**
**Training and Vendor Development**
**Multimedia Creation & Support**
mailto:Service.Manuals@nokia.com

Please keep in mind also that this documentation is continuously being updated and modified, so watch always out for the newest version.


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The availability of particular products may vary by region.

### IMPORTANT

This document is intended for use by qualified service personnel only.

# 3. WARNINGS AND CAUTIONS

Please refer to the phone's user guide for instructions relating to operation, care and maintenance including important safety information. Note also the following:

## 3.1 Warnings

1. CARE MUST BE TAKEN ON INSTALLATION IN VEHICLES FITTED WITH ELECTRONIC ENGINE MANAGEMENT SYSTEMS AND ANTI–SKID BRAKING SYSTEMS. UNDER CERTAIN FAULT CONDITIONS, EMITTED RF ENERGY CAN AFFECT THEIR OPERATION. IF NECESSARY, CONSULT THE VEHICLE DEALER/MANUFACTURER TO DETERMINE THE IMMUNITY OF VEHICLE ELECTRONIC SYSTEMS TO RF ENERGY.

2. THE HANDPORTABLE TELEPHONE MUST NOT BE OPERATED IN AREAS LIKELY TO CONTAIN POTENTIALLY EXPLOSIVE ATMOSPHERES, EG PETROL STATIONS (SERVICE STATIONS), BLASTING AREAS ETC.

3. OPERATION OF ANY RADIO TRANSMITTING EQUIPMENT, INCLUDING CELLULAR TELEPHONES, MAY INTERFERE WITH THE FUNCTIONALITY OF INADEQUATELY PROTECTED MEDICAL DEVICES. CONSULT A PHYSICIAN OR THE MANUFACTURER OF THE MEDICAL DEVICE IF YOU HAVE ANY QUESTIONS. OTHER ELECTRONIC EQUIPMENT MAY ALSO BE SUBJECT TO INTERFERENCE.

## 3.2 Cautions

1. Servicing and alignment must be undertaken by qualified personnel only.

2. Ensure all work is carried out at an anti–static workstation and that an anti–static wrist strap is worn.

3. Use only approved components as specified in the parts list.

4. Ensure all components, modules screws and insulators are correctly re–fitted after servicing and alignment.

5. Ensure all cables and wires are repositioned correctly


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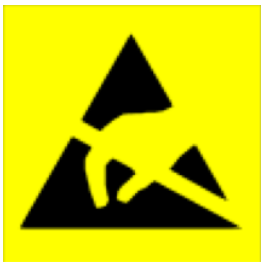
## 4. ESD PROTECTION



Nokia requires that service points have sufficient ESD protection (against static electricity) when servicing the phone.

Any product of which the covers are removed must be handled with ESD protection. The SIM card can be replaced without ESD protection if the product is otherwise ready for use.

To replace the covers ESD protection must be applied.

All electronic parts of the product are susceptible to ESD. Resistors, too, can be damaged by static electricity discharge.

All ESD sensitive parts must be packed in metallized protective bags during shipping and handling outside any ESD Protected Area (EPA).

Every repair action involving opening the product or handling the product components must be done under ESD protection.

ESD protected spare part packages MUST NOT be opened/closed out of an ESD Protected Area.

For more information and local requirements about ESD protection and ESD Protected Area, contact your local Nokia After Market Services representative.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# 5. CARE AND MAINTENANCE

This product is of superior design and craftsmanship and should be treated with care. The suggestions below will help you to fulfil any warranty obligations and to enjoy this product for many years.

- Keep the phone and all its parts and accessories out of the reach of small children.
- Keep the phone dry. Precipitation, humidity and all types of liquids or moisture can contain minerals that will corrode electronic circuits.
- Do not use or store the phone in dusty, dirty areas. Its moving parts can be damaged.
- Do not store the phone in hot areas. High temperatures can shorten the life of electronic devices, damage batteries, and warp or melt certain plastics.
- Do not store the phone in cold areas. When it warms up (to its normal temperature), moisture can form inside, which may damage electronic circuit boards.
- Do not drop, knock or shake the phone. Rough handling can break internal circuit boards.
- Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the phone.
- Do not paint the phone. Paint can clog the moving parts and prevent proper operation.
- Use only the supplied or an approved replacement antenna. Unauthorised antennas, modifications or attachments could damage the phone and may violate regulations governing radio devices.

All of the above suggestions apply equally to the product, battery, charger or any accessory.


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# 6. BATTERY INFORMATION

Note: A new battery's full performance is achieved only after two or three complete charge and discharge cycles! The battery can be charged and discharged hundreds of times but it will eventually wear out.

When the operating time (talk-time and standby time) is noticeably shorter than normal, it is time to buy a new battery. Use only batteries approved by the phone manufacturer and recharge the battery only with the chargers approved by the manufacturer.

Unplug the charger when not in use. Do not leave the battery connected to a charger for longer than a week, since overcharging may shorten its lifetime.

If left unused a fully charged battery will discharge itself over time Temperature extremes can affect the ability of your battery to charge.

For good operation times with Ni-Cd/NiMh batteries, discharge the battery from time to time by leaving the product switched on until it turns itself off (or by using the battery discharge facility of any approved accessory available for the product).

Do not attempt to discharge the battery by any other means Use the battery only for its intended purpose.

Never use any charger or battery which is damaged.

Do not short-circuit the battery. Accidental short-circuiting can occur when a metallic object (coin, clip or pen) causes direct connection of the + and - terminals of the battery (metal strips on the battery) for example when you carry a spare battery in your pocket or purse. Shortcircuiting the terminals may damage the battery or the connecting object.

Leaving the battery in hot or cold places, such as in a closed car in summer or winter conditions, will reduce the capacity and lifetime of the battery. Always try to keep the battery between 15°C and 25°C (59°F and 77°F).

A phone with a hot or cold battery may temporarily not work, even when the battery is fully charged. Batteries' performance is particularly limited in temperatures well below freezing.

Do not dispose batteries in a fire! Dispose of batteries according to local regulations (e.g. recycling).

Do not dispose as household waste.


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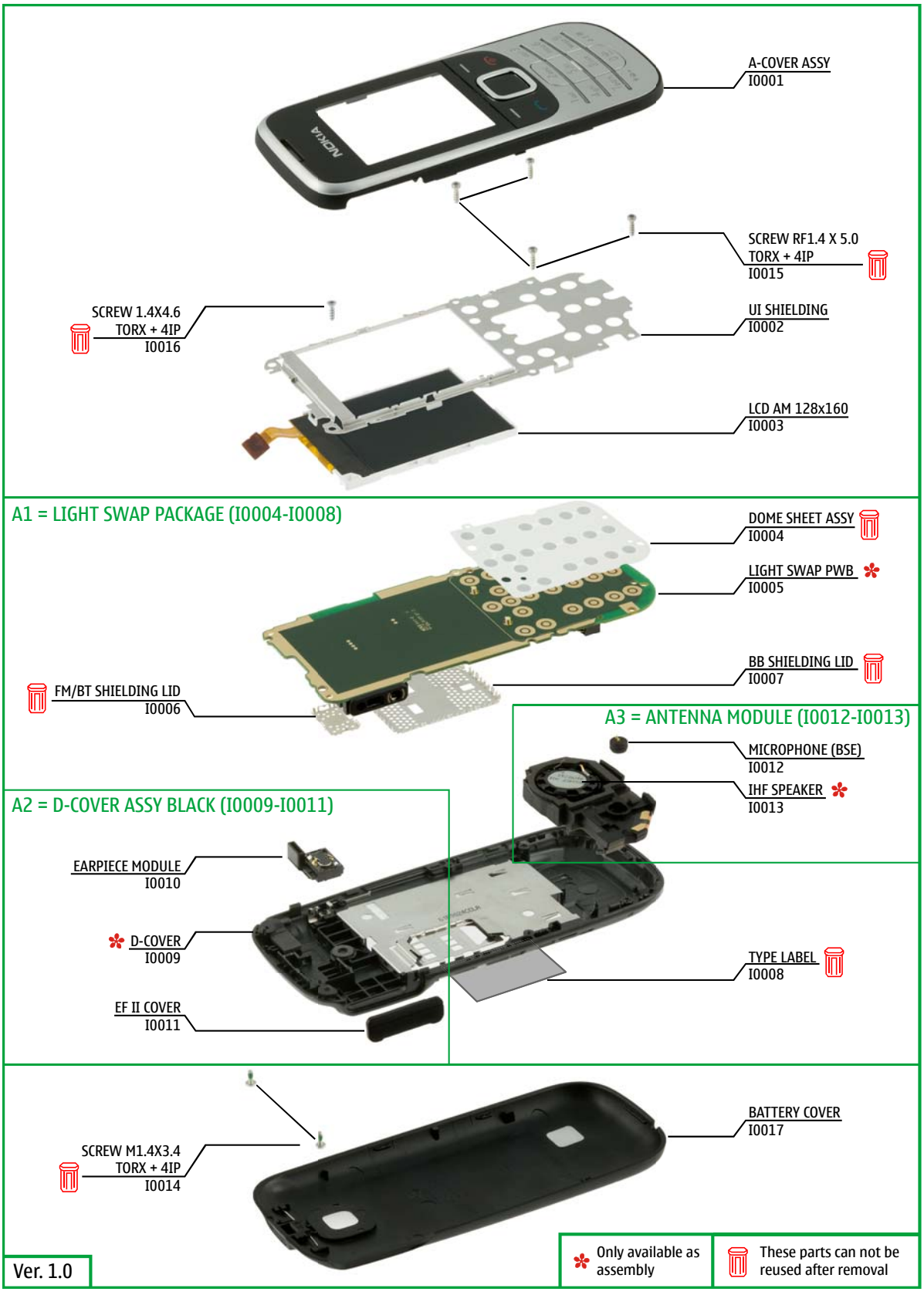
## 7. NOKIA 2330 CLASSIC EXPLODED VIEW





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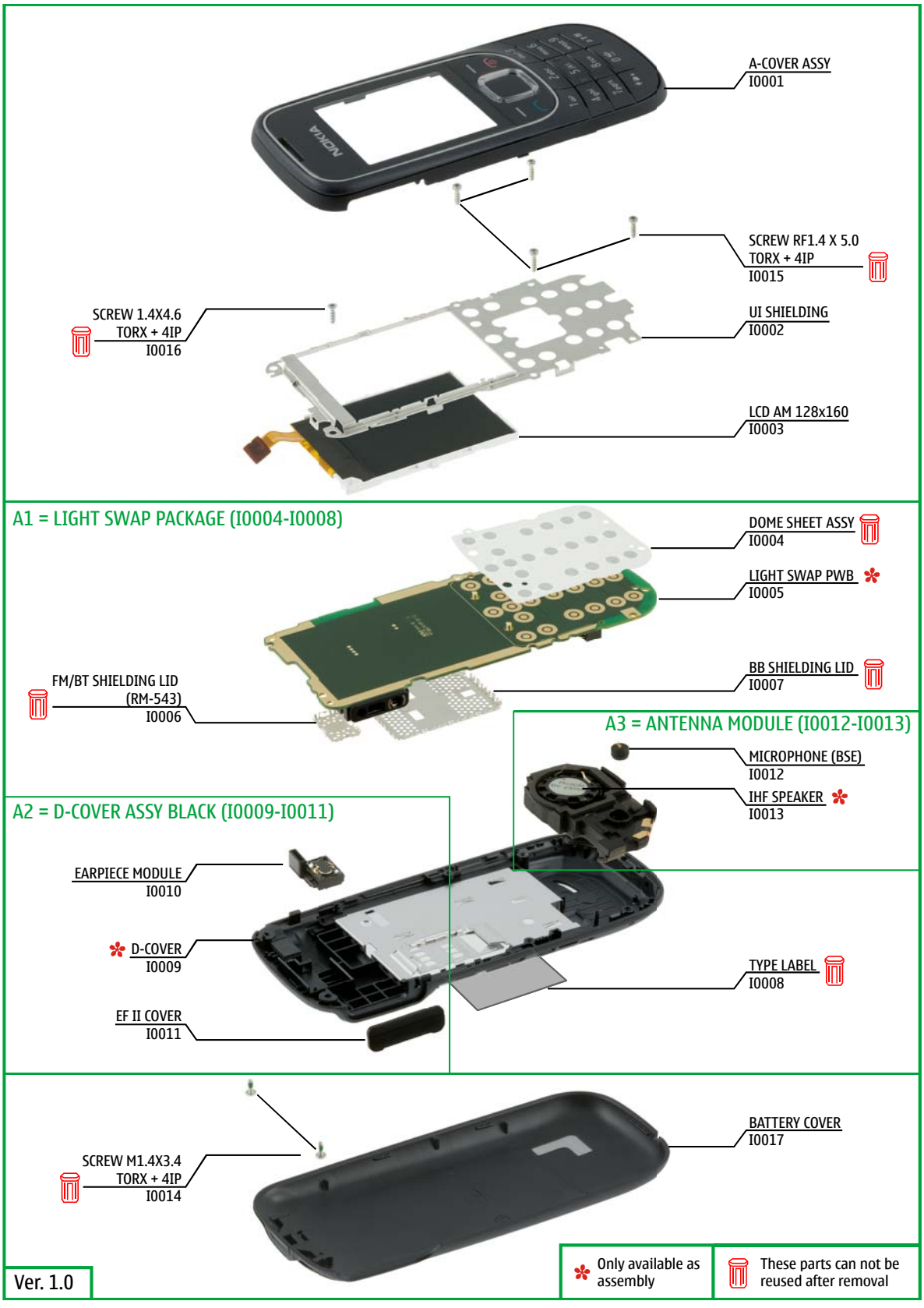
## 8. NOKIA 2320 CLASSIC AND NOKIA 2323 CLASSIC EXPLODED VIEW





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## 9. SERVICE DEVICES

| | | |
|---|---|---|
| FLS-5 Flash Device | CA-112DS Data Service Cable | CA-111DS Service Cable (alternative) |
| AC-3 Travel Charger | BL-5C Battery | ACF-8 Power Supply |
| FLS-4s POS Flash Device (alternative) | ACF-8 Country-Specific Adapters | **NMP standard toolkit (v2)** For more information, refer to the Service Bulletin (SB-011) on NOKIA Online. Supplier or manufacturer contacts for tool re-order can be found in "Recommended service equipment" document on NOKIA Online. |


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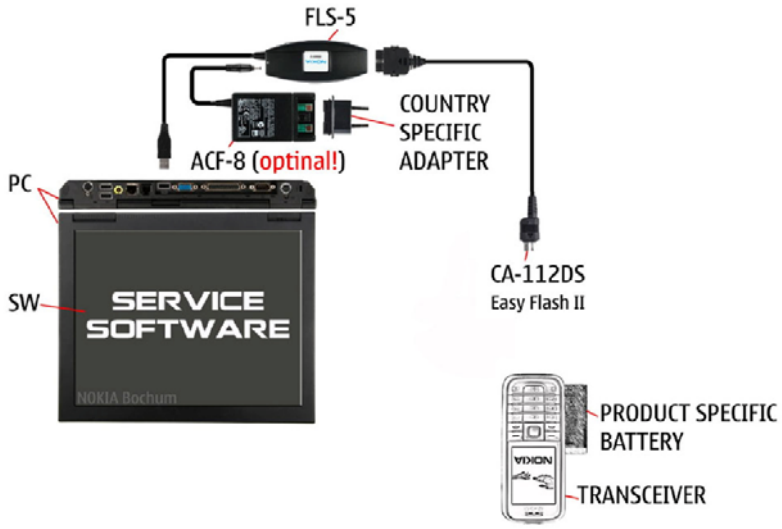
# 10. SW-UPDATE

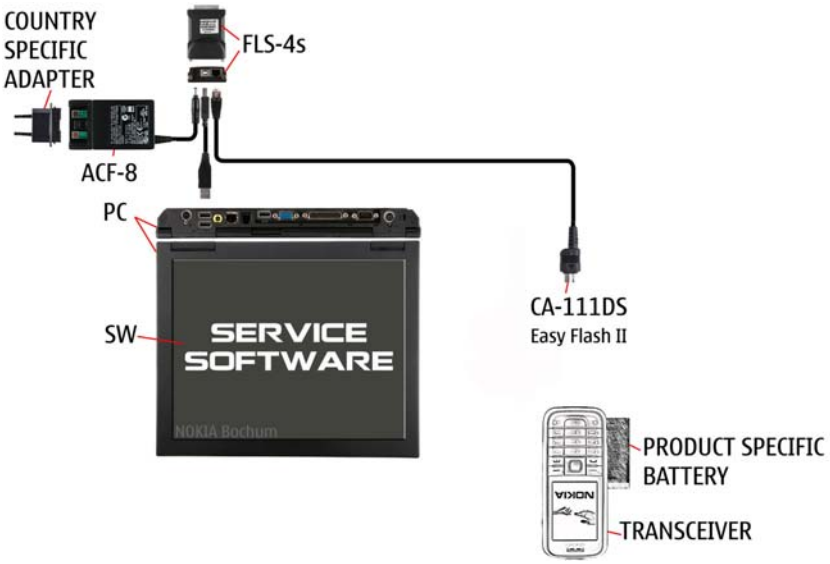
## Flash concept- (Point of Sales)

To use the FLS-5 or FLS-4s Flash Dongle, you have to follow the user guide inside the sales package.
Please check always for the latest version of flash software, wich is available on Nokia Online.

For flashing with FLS-5 use the CA-112DS cable




For flashing with FLS-4 use the CA-111DS cable
NOTE: No longer available for purchase





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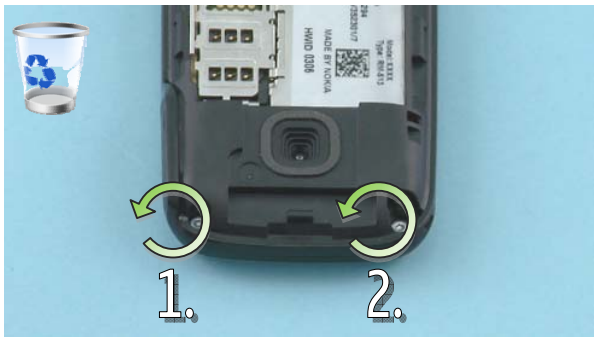
## 11. DISASSEMBLY INSTRUCTION

1) Nokia 2320 classic, Nokia 2323 classic and Nokia 2330 classic disassembly. Please notice that the model used in the following instructions is Nokia 2330 classic.

2) Use the Nokia Standard Toolkit version 2.

3) Press the BATTERY COVER release button to remove the BATTERY COVER.

4) Remove the BATTERY COVER.




5) Unscrew the two Torx+ 4 SCREWS in the order shown. The SCREWS cannot be used again. Discard them.

6) Use the SRT-6 to release the five snaps on the right side of the A-COVER.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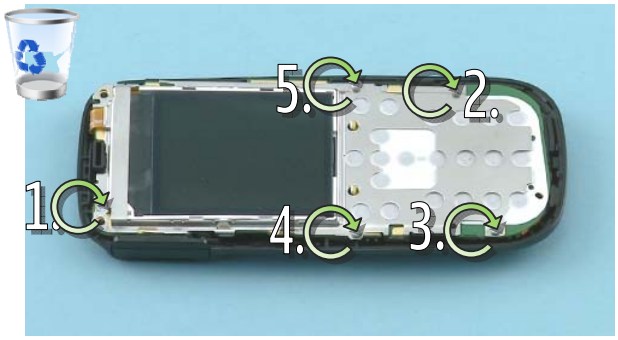
7) Continue to release the snaps on the left side of the A-COVER with the SRT-6.

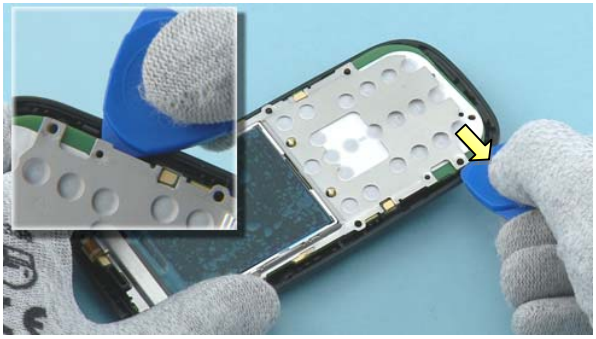
8) Remove the A-COVER.




9) Unscrew the five Torx+ 4 SCREWS in the order shown. The SCREWS cannot be used again. Discard them.

10) Protect the LCD with a protective film.

11) Separate the ENGINE MODULE from the D-COVER by releasing the first clip using the SRT-6.



12) Release the second clip on the left side of the ENGINE MODULE using the SRT-6.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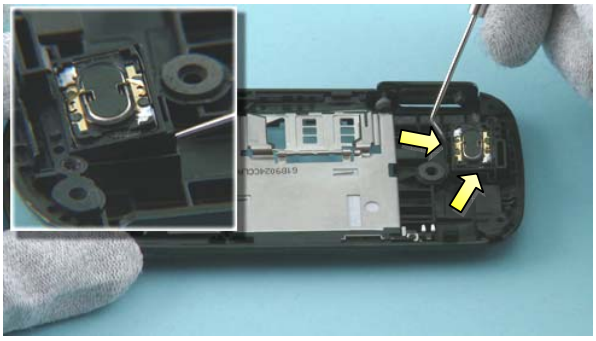
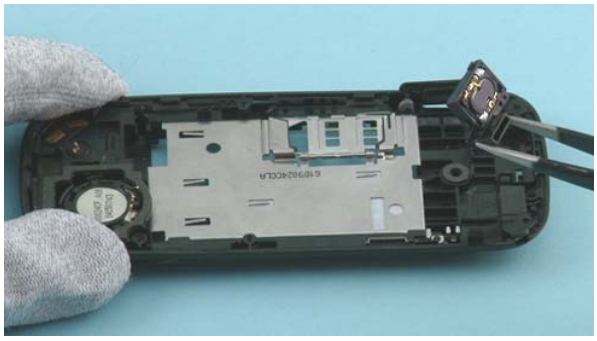
13) Remove the ENGINE MODULE.

14) Use the SS-93 to remove the ANTENNA MODULE.

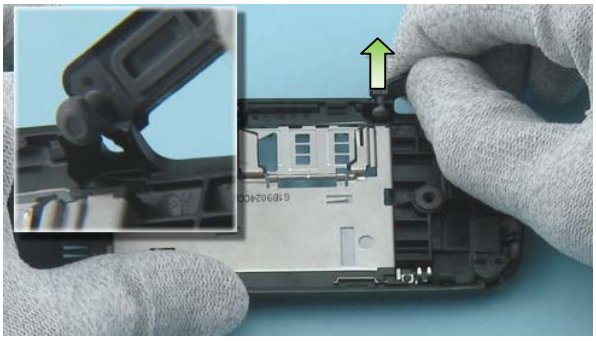
15) Use the dental tool to lever out the microphone. Be careful not to damage yourself or the microphone!



16) Use the dental tool to lever out the EARPIECE MODULE.



17) Remove the EARPIECE MODULE using tweezers.



18) Remove EF II COVER by pulling it out gently in the direction shown.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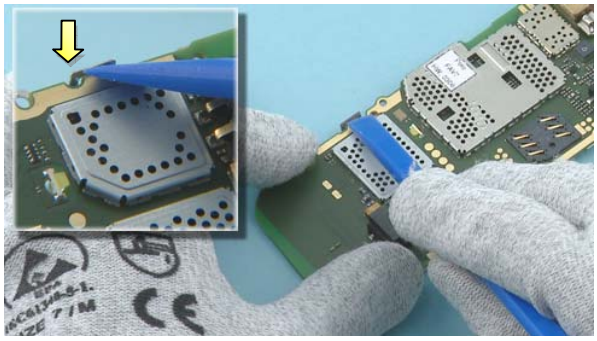
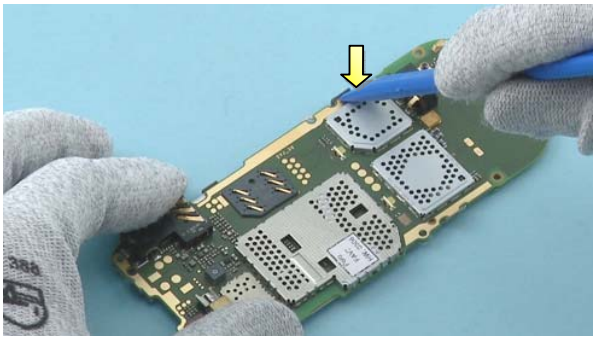
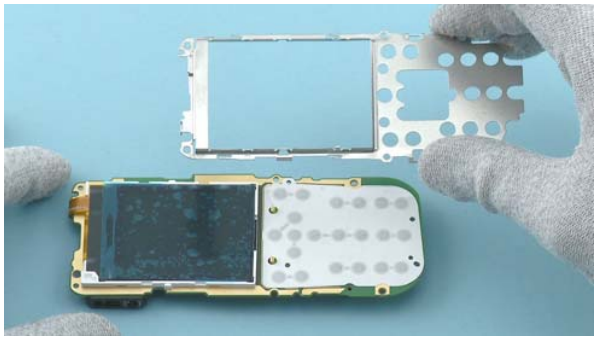


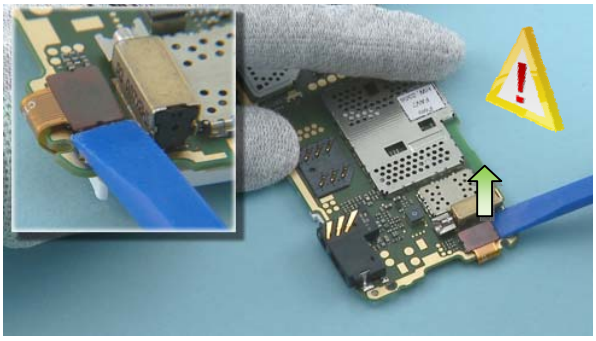
19) On the right side of the UI SHIELDING, release the first clip using the SS-93.



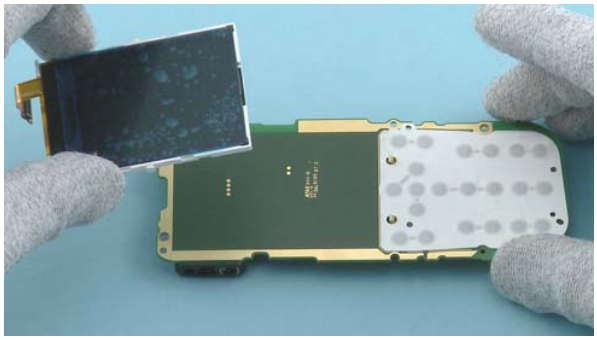
20) Release the second clip on the left side of the UI SHIELDING using the SS-93.



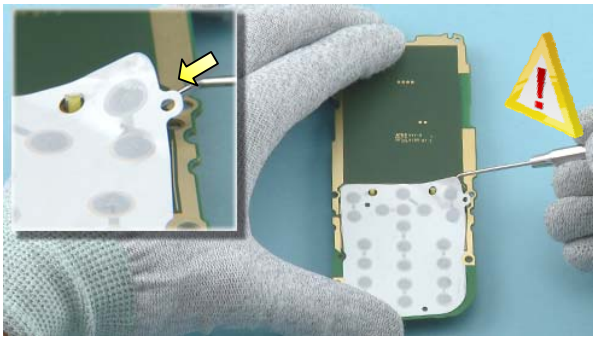
21) Remove the UI SHIELDING.



22) Carefully release the LCD connector using the SS-93. Be careful not to damage the connector or any other components nearby!



23) Remove the LCD.



24) Use the dental tool to lift an edge of the DOME SHEET. Be careful not to damage the DOME SHEET or the PWB!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25) Slowly peel back and remove the DOME SHEET. The DOME SHEET cannot be used again. Discard it.

26) Nokia 2330 Classic disassembly is now complete.

- END OF DISASSEMBLING -


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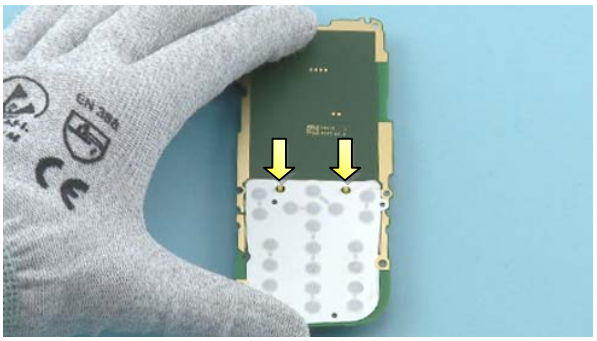
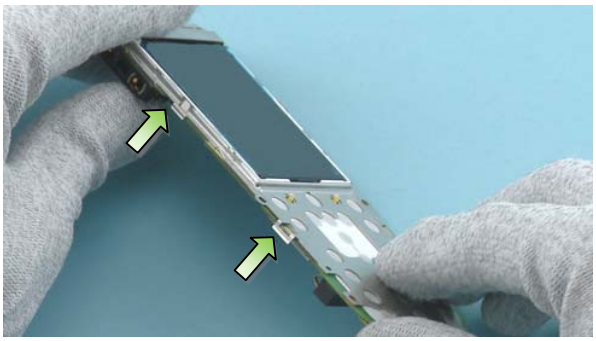
## 12. ASSEMBLY HINTS

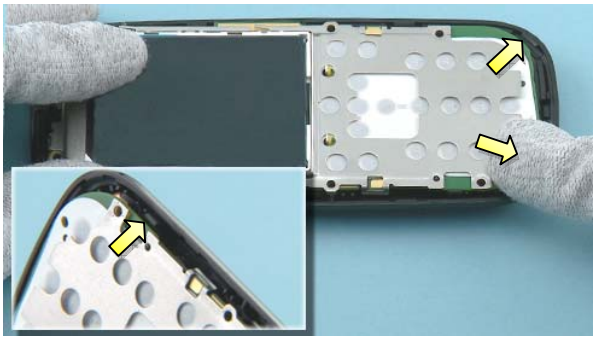


1) Make sure the DOME SHEET is glued back in its correct place on the PWB.

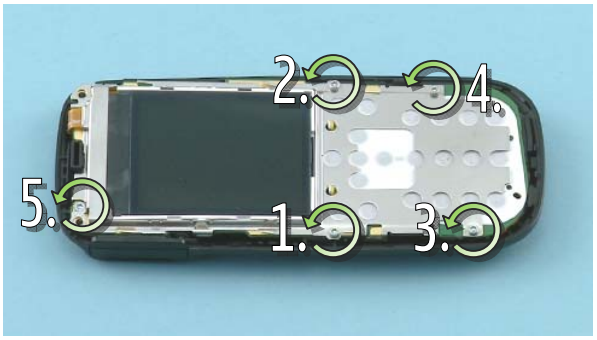


2) Press the PWB gently in the direction shown to lock with the snaps of the UI SHIELDING.

3) Place the ENGINE MODULE in its place with respect to the snap on the D-COVER.



4) Then press gently on the lower ends of the ENGINE MODULE to lock with the two snaps on the D-COVER.




5) After placing the ENGINE MODULE, tighten the five Torx+ 4 screws to the torque of 18 Ncm in the order shown.

6) After the A-COVER is in place, tighten the two Torx+ 4 screws to the torque of 14 Ncm in the order shown.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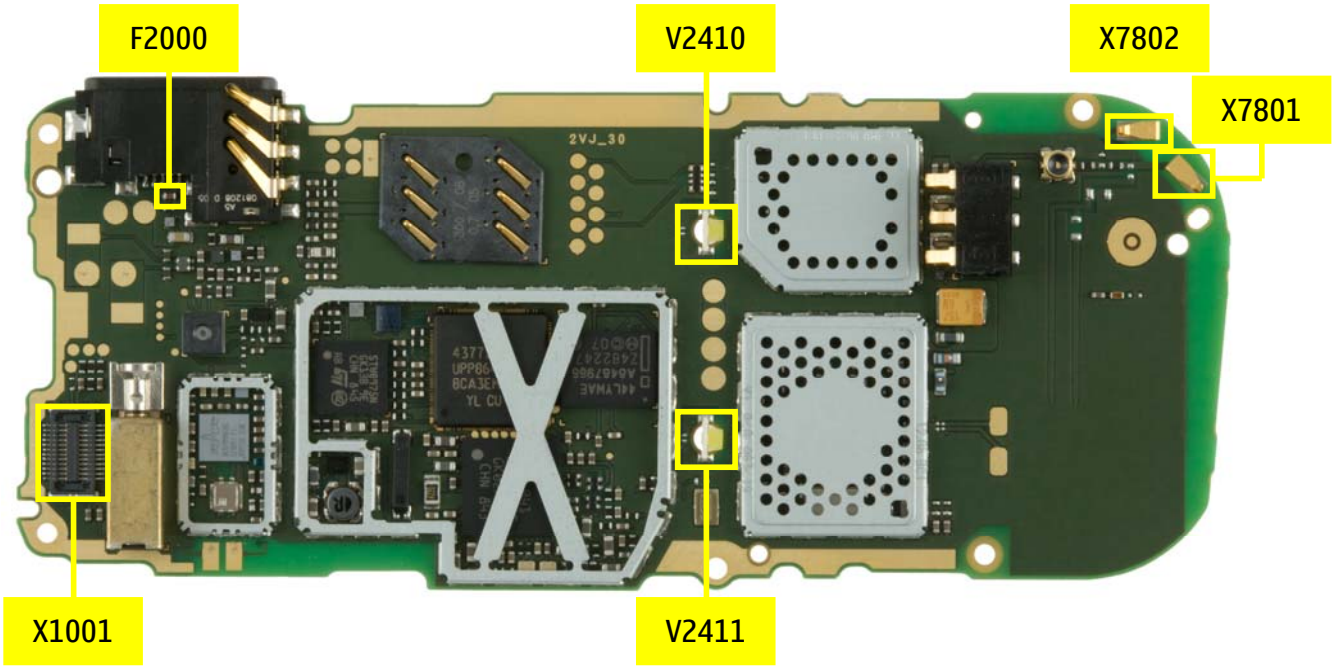
## 13. SOLDER COMPONENTS

Solder components only for Level 2




**Note:** Above is RM-512 and RM-513 PWB Layout. For RM-514, RM-515 and RM-543, the solder components are the same position as RM-512.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